

# Health Sciences Applied To Coaching Phase II

**Top Form** Inc.



# TOP FORM, INC.



**LIVE IT!**

[www.topform.us](http://www.topform.us)

## TOP FORM ATHLETIC TRAINING SERVICES

**CONTRACTS**  
SCHOOLS  
PREMIER CLUBS  
PROFESSIONAL

## TOP FORM PERFORMANCE

**PERFORMANCE CENTER**  
ADULT PERSONAL TRAINING  
YOUTH PERFORMANCE TRAINING  
GROUP/TEAM TRAINING  
SUMMER CAMPS  
BOOT CAMPS

## NUTRITION CENTER

## TOP FORM EDUCATION

**EDUCATION CENTER**  
CPR/AED/FIRST AID  
NYS COACHING COURSES  
SCHOOL CHEMICAL HEALTH  
WELLNESS  
LIFE COACHING  
NUTRITION

## TOP FORM FRANCHISING

# **Demands of Your Sport!**

A decorative vertical bar on the left side of the slide, featuring a black vertical line with a small black dot. The bar is surrounded by a series of diagonal stripes in shades of blue and green, creating a spiral-like effect. A horizontal black line extends from the dot across the top of the slide.

# Components of Strength and Conditioning Programs

- ∩ **Aerobic**
- ∩ **Non-Aerobic**
- ∩ **Strength**
- ∩ **Flexibility**
- ∩ **Power**
- ∩ **Speed**
- ∩ **Balance**
- ∩ **Sport Specific Training**
- ∩ **Vision**
- ∩ **Mental**
- ∩ **Nutrition**

**Now write a S & C outline for your pre-season**

# Concepts of Training

## » EXERCISE PRESCRIPTION

- **Safety First!!!**
- **Exercise Selection/Mode (Isometric, Isotonic, isokinetic)**
- **Exercise Order**
- **Muscle Balance (Agonist, antagonist) Bad Backs!**
- **Frequency**
- **Duration/Rest**
- **Intensity (Volume vs Absolute) Load**
- **Periodization**

Write again



First ask yourself  
what you are  
trying to  
accomplish!

# Fitness & Conditioning Systems in Sport

## ∞ Aerobic

- Krebs Cycle over 2min reaching 60-90% *VO2 Max*
- Foundation
- Base
- With Oxygen
- LSD
- HR Management
- Fat Burning

## ∞ Non-Aerobic

- w/Out Oxygen
- Sprint
- Lifting
- Lactic System 2min
- ATP-PC 30sec
- PC 10sec
- Glycolysis
- Lactate Threshold
- Onset of Blood Lactate Accumulation (OBLA)

# Fitness & Conditioning

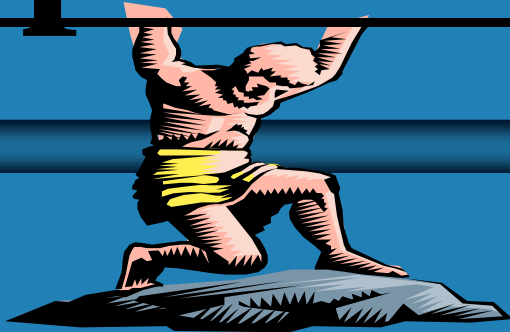
## ∞ Aerobic

- **Slow Twitch Muscle Fibers**
- **Low Power Production**
- **Incr. Energy Efficiency**
- **Incr. Waste Removal Efficiency**
- **Cardio Strength**
- **Incr. Circulatory Efficiency**
- **Incr. Muscular Efficiency**
- **Incr. Metabolism/Endocrine Response**
- **Repletion Krebs' Cycle/ETS**

## ∞ Anaerobic

- **Fast Twitch Muscle Fibers**
- **Very FT Muscle Fibers**
- **Incr. Power Production**
- **Decr. Efficiency**
- **Poor Stamina**
- **Incr. Skeletal Strength**
- **Incr. Metabolism/Endocrine Response**
- **Repletion/glycogenolysis**

# Top Form Inc. Training Pyramid



Advanced Nutrition/Supplementation

Mental

Sport Specific

Balance / Agility

Speed / Power

Strength

Flexibility/Nutrition

Aerobic/School/Family/Faith



# Fitness and Conditioning

∞ **CO = Stroke Vol x HR**

∞ **Max Oxygen Uptake**

∞ **Tidal Volumes**

∞ **Glycogenolysis**

∞ **Oxygen Deficit** why so important?

∞ **Ph**

∞ **Lactic Acid**

∞ **Gluconeogenesis**

∞ **VO2 Max**

# The Warm-Up

- Ω **Increase tissue Temp**
  - Ω **Prepare Neuromuscular Response (Golgi Tendon Organ, Muscle Spindle)**
  - Ω **Prepare Lymphatic Response**
  - Ω **Increase Blood Flow To The Brain!!**
  - Ω **Sensory Preparation**
  - Ω **Increased tissue temperature is optimal for increasing enzymatic activity**
  - Ω **Increase disassociation of oxygen from RBC**
  - Ω **Loosens connective tissue**
  - Ω **General vs Specific**
- **Increase Synovial Fluid**
  - **Increase Hormonal Response**
  - **Increase Blood Flow to Eyes**
  - **Begin Heating/Cooling Regulation**
- Ω **THIS REALLY DOES MORE THAN YOU THOUGHT!**



# Growth and Development

- Ω **Elementary**
- Ω **Middle School**
- Ω **High School**
- Ω **College**
- Ω **Weekend Warriors**
- Ω **Baby Boomers**

# Flexibility

## ∞ Static



- **Ballistic**
- **PNF (Two Person)**
- **Dynamic**
- **Muscle Energy**

Active Stretch  
Passive Stretch  
Stretch Reflex

Reciprocal Inhibition (Muscle Energy)

Autogenic Inhibition (PNF)

Posture is single biggest concern when stretching!

# Strength

∩ **What do you want to do?**

∩ **Safety First**      **2**      **3**

- **ABSOLUTE**
- **ENDURANCE/FATIGUE**
- **MINOR REPETITIVE**
- **POWER LIFTING**
- **BODYBUILDING/SCULPTING**
- **REFER TO SLIDE 4**
- **No Squat???, No Bench??**

**<http://www.functionalstrengthcoach3.com/squats.html>**

# Speed

Ω Start Acceleration

Ω \*Speed Strength

Ω Reaction (physical/mental)

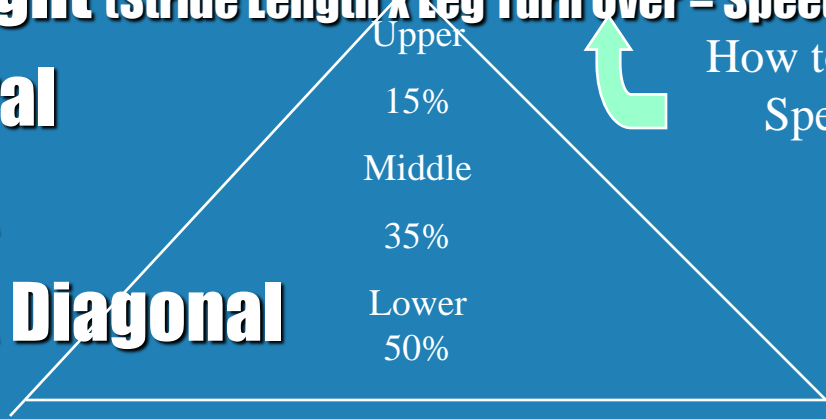
Ω \*Quickness \*Speed Endurance

Ω Straight (Stride Length x Leg Turn Over = Speed)

Ω Lateral

Ω Back

Ω Back Diagonal



How to Train  
Speed?



# Power

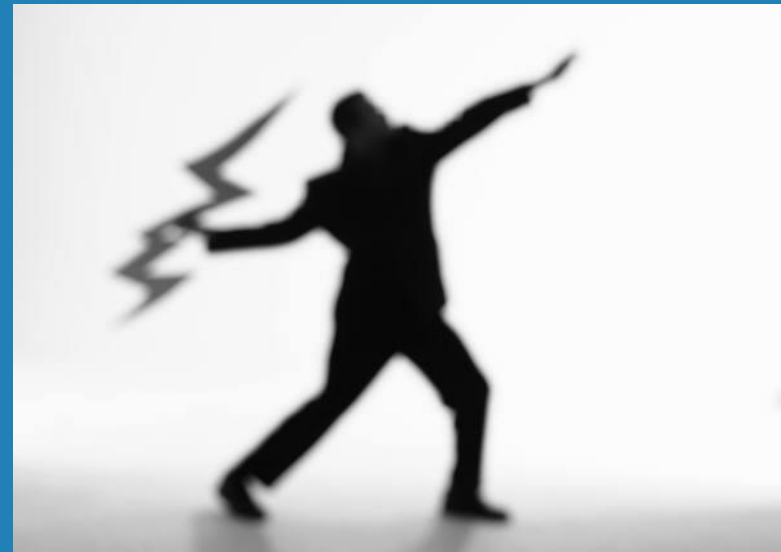
∞ Speed x Strength = Power

∞ Developing Power Through Weights

∞ Developing Power Through Speed

- 10% Rule
- Olympic Lifts

Plyometrics



# Balance/Proprioception

## ∞ Training The Core

- **Abs**                      Push up variations
- **Back**

## ∞ Non-Functional Training

- **Why bother?**
- **Practice Instability** Do we ALWAYS play in good positions????
  - Thera- Ball
  - Mini Trampolines
  - Med Ball Training





# Sport Specific Training (SST)

- ∩ **Key Word: Training!!**
- ∩ **Match Demands of Your Sport To Training**
- ∩ **Biomechanics (HUGE!!)**
- ∩ **SAID Principle** (Example: Bench Press?)
- ∩ **Individual Differences**
- ∩ **Opposite Side Training**
- ∩ **Backward Training**

# Training Vision

Ω **Why?**

Ω **What Sports?**

Ω **How?**

- **Depth**
- **Acuity**
- **Peripheral**



# Nutrition

## Ω Key Words

- **Diet**
- **Nutrient Density, mineral, vitamin**
- **Weight gain/loss, dehydration/hyperhydration?**
- **Carbohydrate, protein, fat**
- **Amino Acid**
- **Glycogen**
- **Ergogenic Aids**

# Nutrition

- ∞ **Breakfast, Breakfast, Breakfast**
- ∞ **Meal Timing**
- ∞ **Power Snacks**
- ∞ **The Skinny on Sugar**
- ∞ **The Skinny on Fake Sugar/Diet Products**
- ∞ **Glycemic Index (gatorade, simple sugars)**
- ∞ **Body Fat %/Body Mass Index BMI**
- ∞ **The Soda Affect**
- ∞ **Chips n dip**



# Terms You May Have Heard?

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- Ω **Carb Loading**
- Ω **Protein Sparing**
- Ω **Soy**
- Ω **Sleep?**

# Mental Training

- Ω **Arousal, Performance**
- Ω **Imagery/Focus**
- Ω **Mental Management Skills (SST)**
- Ω **Motivation**
- Ω **Mind's effect on Performance**
- Ω **Relaxation Techniques**
- Ω **Pain Management**
- Ω **Stress** (making the situation normal)



# *Iron Devil* The Program



## **Columbia High School/ *Iron Devil* Program**



What Kind?

- After School Intra-mural Program
- Four Seasonal 10 week cycles
- Commitment based 80% Achievement
- Professional Programming
- PE/Health Components
- Emphasis Hard Work Over Shortcuts
- **Pre and Post Testing**
- Outcome Based/Goal Oriented
- Nutritional Component (PBJ)
- Create Fun/Inclusive Environment
- Direct Supervision
- Rewards!
- Drug/Supplement Free Message